

**A METHOD AND SYSTEM FOR DETERMINING
PARAMETERS INSIDE A SUBTERRANEAN FORMATION
USING DATA SENSORS AND A WIRELESS AD HOC NETWORK**

ABSTRACT OF THE INVENTION

The present invention is directed to a method and system for determining parameters inside a subterranean formation. In accordance with the present invention, a plurality of wireless data sensors are injected into the pores or fractures of a subterranean formation. The data sensors include sensors that record parameters such as temperature, pressure and certain time stamps. Either autonomously or upon command from a data interrogator tool located down hole, the plurality of data sensors form a wireless ad hoc network and telemeter the recorded data back to the data interrogator tool, which in turn communicates the data to a microprocessor located at the surface. Based on these data, the spatial distribution of the sensors and formation parameters such as temperature and pressure at each data sensor inside the subterranean formation can be obtained.